

Catalog Description: Phys 202. General Physics. 3-3-0. Prerequisite: Credit or registration in Math 165 and Phys 203. A technical study of mechanics, heat, and sound. Credit toward graduation will not be given for both Phys 101 and 201.

Prerequisite: Credit or registration in MATH 165 and PHYS 203.

Required Text: “Fundamentals of Physics” by Halliday, Resnick, and Walker. 7th ed.

Class Materials: Documents discussed in class will periodically be placed on the Blackboard site for download. Exams from previous classes are on the professor’s website, which is linked from Blackboard (<http://www.nicholls.edu/phsc/cyoung/EXAMS>).

Student Outcome Objectives:

- PHYS 202, as a Core Curriculum course, fulfills three hours of general education requirements in the area of the natural sciences and is thus designed to enable students to meet the following broad outcomes for all the natural sciences:
 - Upon completion of the undergraduate curriculum, students will be able to comprehend and to apply the basic principles of science and methods of scientific inquiry.
 - Graduates will be able to comprehend and to use quantitative concepts and methods to interpret and to critically evaluate data and to effectively problem-solve in a variety of contexts demanding quantitative literacy.
 - Graduates will be able to comprehend and to apply the basic principles of science and methods of scientific inquiry.
 - For further explanation of the learning objectives associated with these goals, visit http://www.nicholls.edu/gened/goals_objectives.html.
- The student will demonstrate a conceptual and mathematical understanding of electrostatics and electrodynamics.
- The student will show a working knowledge of electric circuits, their components, and how they are used.
- The student will understand the concepts and mathematics concerning the nature of light and be able to apply these in their study of optical instruments.
- The student will demonstrate a conceptual knowledge of relativity, quantum mechanics, and astronomy.

Topics:

This course includes a calculus-based treatment of electricity & magnetism, light, and modern physics. In particular, these topics are covered:

- **Electricity & Magnetism:** charge, fields, forces, potential, energy, capacitance, current, circuits, magnetic forces & fields, induction, AC circuits
- **Light:** reflection, refraction, geometric optics, interference, diffraction
- **Modern Physics:** quantum physics, relativity, atomic physics, cosmology

Testing: All examinations will be closed book. Data and constants will be provided. The following are the exam dates:

Exam #1: **Monday, 16 February 2009**
Exam #2: **Wednesday, 25 March 2009**
Exam #3: **Wednesday, 6 May 2009**
Final Exam: **Wednesday, 13 May 2009, 1 pm**

Homework: I will assign the homework at the beginning of each segment. I will not collect the homework, but you will have periodic and announced quizzes whose problems will be taken directly from the homework.

Quizzes: For each segment prior to the hour-exams, you will take 1-2 quizzes. These quizzes will be announced one class before the quiz date. The problems on each quiz will come directly from the homework assignment.

Grading: There are a total of 540 points. Each hour exam counts 100 points, and the final exam is worth 200 points (500 points). Quiz grades combine to a total of 30 points. Class participation credit comprises 10 points. The grading scale is percentage-based with A (90-100%), B (80-89%), C (70-79%), D (60-69%), and F (0-59%) grades being assigned at the end of the semester.

For example, a student might receive these grades:

Hour exams: 85, 92, 73
Quiz grades: 10, 10, 4
Class participation: 7
Final Exam: 188

Extra Credit: 15

This student's final grade would be the total of these points divided by 540, or 88% (B).

Extra Credit: The student will have several opportunities for extra credit. The criteria for these credits are outlined in a separate document available on BlackBoard. A student can receive up to 20 extra credit points.